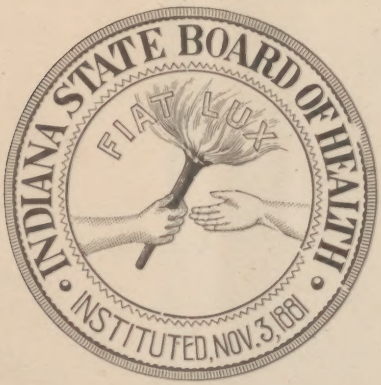
Consumption

ITS CAUSE, PREVENTION AND CURE



HEALTH CIRCULAR

Indiana State Board of Health, Indianapolis

THIS CIRCULAR IS FREE, AND WILL BE SENT
TO ANY ONE ASKING FOR IT FREE OF COST

Massachusetts State Sanatorium.

CONSUMPTION IS NOT HEREDITARY.

CONSUMPTION IS CURABLE IF TAKEN EARLY.

NO SPIT NO CONSUMPTION.

INTRODUCTION.

The idea of this circular is to instruct the people in regard to the losses incident to consumption, in regard to its cause and preventability, and also as to the fact that in its early stages it is curable.

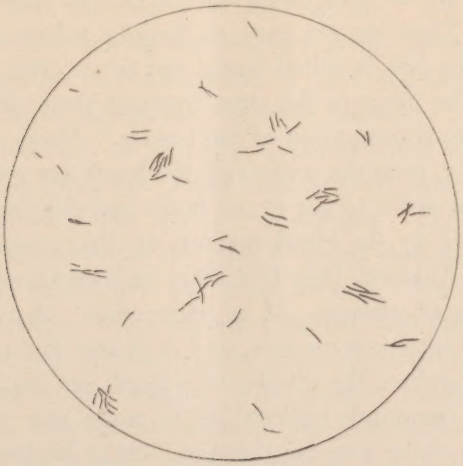
The central point of the circular is HOW TO PREVENT. We wish to emphasize the statement that in its early stages *consumption is curable*, and to impress upon the people that they must not commit the mistake of refusing to accept the early diagnosis of competent physicians, and thus lose the opportunity of cure.

The disease is of slow and insidious approach, and its early discovery must be made to successfully combat it. It is now known that most cases of beginning consumption are diagnosed malaria, and we are warned by high authority to be slow in accepting a malarial diagnosis, unless direct microscopical examination of the blood for the malarial plasmodium has been made.

DON'T TRY TO CONVINCE YOURSELF YOU DO NOT HAVE CONSUMPTION IF YOUR DOCTOR SAYS YOU HAVE. THE DELAY MIGHT CAUSE YOU TO LOSE YOUR LIFE.

CAUSE OF CONSUMPTION.

Consumption is always caused by a minute organism (microbe), called bacillus tuberculosis. Prof. Koch discovered this fact in 1882. Without the presence of the germ there is no tuberculosis. The disease is never inherited, and the old idea that it is, must be dropped, for it is certainly false. No progress can be made against an enemy if false ideas are entertained in regard to his strength and whereabouts, so we must dismiss absolutely the false notion that we can inherit consumption, otherwise we can not make a successful fight against it. It is true, consumption is a family



Consumption Microbes.

They are rod-shaped plants, so minute they must be magnified many hundred times to be seen.

disease. Whole families fall victims to it. Father, son, and grandson get it. But still we say, *it is not inherited.* Accurate, careful study of thousands of cases by scientific men over periods of many years discloses that what seems to be heredity is always infection. A child may inherit weak lungs just as it may inherit weak eyes, and the lungs being weak, the consumption germ gets hold. Even though the lungs be weak, still the germ can not get hold, if the person by right living, keeps up his vitality, which means—maintain his resistance. It is likely that no one escapes taking the seeds (germs) of consumption into his body. They are also carried into us by the air we breathe, and by certain foods we may eat. Why, then, does not everyone have consumption? This

would be the case if there were not residing in the healthy body a resisting force. A discussion of this resisting force opens up the extensive subject of *immunity*, which can not be discussed here.

HOW WE GET CONSUMPTION.

The seeds of consumption (microbes) may enter our bodies in three ways: By the lungs, by the stomach and by the skin. The invasion is believed to be most frequently by the lungs, yet some recent experiments on animals indicate that the stomach, or more likely, the intestinal tract, is the most frequent port of entry. In order to enter by the skin, there must be cuts or abrasions for them to fall into. They can not grow on healthy unbroken skin. Consumption of the skin is called *lupus*, and is not often found. Consumption of the lungs is the most frequent form of consumption, and then comes consumption of the bowels. Every organ and tissue of the body, even the brain and the bones are attacked by consumption. In order to get to the brain and the bones, the germs must be carried by the blood current, or, they might traverse the soft tissues. Anyhow, they find their way somehow, and produce the disease in all tissues. It is plain, then, that consumption germs can get into us with ease, and it is also plain that they fail to grow and produce the disease in a large per cent. of instances. Still they so frequently succeed as to cause one in every seven deaths, and so make consumption the most to be feared of all diseases.

LOWERED RESISTANCE.

As already said, if it were not for the resistance which the consumption germs meet in the body we would all have consumption. The word resistance is a term which covers our ignorance. We do not know fully what it is, nor how it acts, but we do know pretty well how we can acquire it and how it may be lost. By far the most frequent way by which resistance is lowered is by *breathing foul air*. Foul air occurs in illy ventilated schoolrooms, in tightly closed bedrooms, livingrooms, offices, courtrooms; always indeed in houses. Whenever you enter a schoolroom, bedroom or any room and your nose detects a smell, *the air is foul*, and remember, *resistance is being lowered in all who breathe it.* The reason that foul air lowers resistance and how it does it, may be easily understood from a superficial knowledge of the physiology of breathing.

Every one knows that we must breathe unceasingly. We can not stop even five minutes and live. Now it is a fact, found out by experiment, that every person must have at least 30 cubic feet of air each minute or he does not live as nature intended. If we do not conform to nature's laws we are foolish indeed, for we can not escape punishment, and the punishment is disease and death. Thirty cubic feet of air is about 220 gallons. Don't say, "Oh, that's a misprint," or "That is too much." This amount is not a guess, not an opinion, it was found out by experiment and much study. Now supply yourself less if you dare, and you will as surely answer for it as you live. The degree of punishment will be in accordance with the degree of your offense. A little breathing of impure air will lower resistance only a little, perhaps not enough to permit the germs of consumption to take hold and grow. Continued breathing of impure air will lower resistance below the point of protection and then off you go. Resistance may also be lowered by lack of good food, slow starvation, anxiety, sorrow, intemperance, and typhoid fever and other diseases. But, as said, *the breathing of impure air is the most frequent method.* Not a little consumption is induced in our schoolhouses. We send our children to schoolrooms which are not supplied with enough pure air. Day after day they breathe poison, gradually lowering their resistance, and then follow coughs, colds, catarrh, headache, languor, loss of appetite, nervous breakdowns, and consumption. The consumption does not appear sometimes until five or ten years after school days are over, but the lungs were made weak while in school, and although nature has tried hard to put off the disease, the person at last goes down. Of the 4,500 who die annually of consumption in Indiana, 1,200 are between the ages of 15 and 25, immediately succeeding the period of school life, and undoubtedly many acquire the disease in the bad air of schoolrooms, but not developing it immediately.

A sure way to acquire consumption is to shut the air out of your house, especially out of your bedroom. The sure way to avoid it is to open the windows wide and let in God's pure air. Don't be afraid of night air. It is purer, sweeter and more healthful than day air. It is chill which makes people take cold in the dark hours, not a mysterious something in the air. Protect yourself against sudden chill and the night won't cause you to catch cold, but on the contrary, will give you health.

CONSUMPTION IS A HOUSE DISEASE.

Only those who live in houses have consumption. Hunters and trappers and other outdoor livers go free from it. They have an abundance of air, and rarely meet consumption germs. The germ of consumption is a plant, not an animal, and it is in every sense a house plant. In the house there exists the most favorable conditions for protecting, planting and growing this plant. Houses which are occupied by consumptives not only are breeding-grounds for consumption during the lifetime of the person afflicted, but for a long time after his death unless thoroughly disinfected. To neglect to disinfect a house which has contained consumption is to invite the disease to attack the succeeding occupants. In the act of coughing, consumptives spray spittle into the air, and this spittle contains germs. They also must spit a great deal, and the many spit upon the floor, the carpet, anywhere. By coughing and spitting tubercular matter gets upon the walls, furniture, carpets, hangings, and bedclothes, in the form of dust. It retains its life for a long time on account of the absence of sunlight and the stagnation of the air. We all well know that we must have sunlight and fresh air if health and strength are to be enjoyed. The tubercle germ needs darkness and stagnant air, hence it flourishes in houses which furnish conditions to its liking. Houses built flat upon the ground, that are damp, and in which shoes readily mould, are fine for producing consumption.

The store, the office, the workshop, the schoolroom, churches, public halls, and public conveyances, have an important influence in inducing consumption. If consumptives would all take care of their sputum, always receiving it in paper spit cups or paper napkins and burning them afterwards, then houses would not become infected. In disinfecting a house in which a consumptive has lived the floors and all woodwork must be washed with strong soap and water, then with carbolic acid or other disinfectant, the walls should be scraped, and then disinfection with formaldehyde gas practiced, and, lastly, the walls recalcimined or papered.

HOW TO PREVENT CONSUMPTION.

Having learned that we must lower our resistance before the consumptive germs can grow in us, and knowing that destroyed germs cannot cause consumption, we have plainly before us the

means of preventing the disease. First, destroy all the germs we possibly can. Second, live out of doors as much as possible, ventilate the house thoroughly, be clean, be temperate.

Care of Sputum.—The first step is to teach and compel all consumptives to place paper napkins before their faces when they cough, to catch the spray and sputum. The napkins may be immediately burned or put into a paper bag, and the bag burned when convenient. It is possible for all but the very poorest consumptive to buy tissue paper and paper bags, and when he feels he must cough to take a sheet of the paper from his pocket, cough and spit into it and place in a paper bag carried in another pocket. When he gets home or where fire is accessible, burn the bag. Very poor people are always cared for by the trustee, and he could furnish them tissue paper and paper bags. The stopping of spreading the seeds of consumption everywhere is simply a matter of decency, and may be accomplished. The consumptives themselves are as deeply interested in destroying their sputum as others are, because they might take back into themselves some of the disease germs they have thrown off and thus be reinfected. The consumptive who spits anywhere is an enemy to others and to himself. Consumptives must not swallow their sputum, for in that way they may reinfect themselves. Sputum is poison and must be destroyed. It is certainly true if there were not spit there would be no consumption. No one should spit when it will not be destroyed in some way. Join in the antispitting crusade. Do all you can to convince others of the importance of caring for the spit of all persons at all times. It is nasty and indecent to spit on sidewalks, floors, in cars, and, indeed, anywhere, except places where it will be destroyed, as into spittoons, gutters, fires, etc. The public spitter is a filthy nuisance, and should be abated. Do all you can to secure the enactment and enforcement of antispitting laws which forbid spitting on sidewalks, in street cars, or other conveyances or on floors. Remember, this applies to all spitting, even by well people. And remember, also, that grippe, catarrh, colds, and all diseases of the air passages are conveyed in spit to you and to others.

Massachusetts State Sanatorium for Consumptives. Early Morning. Waking Up After Sleeping All Night in the Open Air on the Terrace.

KEEPING UP RESISTANCE.

While we are putting forth efforts to stop spreading everywhere the seeds of consumption, we must continually be doing everything possible to increase our resistance. Increasing resistance simply means keeping ourselves in good health. And what pays better? The first want when we are born is air. The breathing process must start immediately. It cannot be put off. Air, air, is the first need of the body, and it must be supplied every instant while we live. Don't for a moment think you can keep up resistance and have good health and not supply yourself with an abundance of pure air. Therefore, keep your house full of fresh air at all times. At night open wide your bedroom windows. Do this winter and summer. Night air is purer and fresher than day air, and you need it greatly while you sleep. Let the air flow over you while you sleep. Don't pay any attention to draughts unless you are hot and sweating, or unprotected by sufficient clothing. When you are well protected with clothing draughts do not harm. If you are riding in a buggy or in a sleigh in the winter time you are in a constant draught, but being warmly clothed, you don't catch cold. Draughts cause congestion if you are hot and insufficiently clothed. This lowers resistance, and the cold microbes, which come from the dried spit of those who have had colds before you and are breathed in by you, get a chance to grow. At consumptive hospitals they warmly clothe the patient and place him in a draught. The draught brings him plenty of fresh air and helps on cure.

Refuse to stay in an illy-ventilated room. If the air of the church, hall, office or any room has the least odor, or seems dead, refuse to remain there. Refuse to permit your children to attend school in an illy-ventilated room. As one authority says: "Be a crank on the subject. Have fresh air at all times, as it is the first requirement for life, and you want to live."

If we are to keep well and so preserve high resistance, the matter of the kind, quantity and quality of food we eat, must be rationally attended to. We must have the good sense to avoid every article of food which even seems not to agree with us. We must also have the good sense to avoid articles of diet which we know are not wholesome. Salads, ices, rich pastry, fancy desserts, etc., should be eaten sparingly even by those who never have a single intimation of indigestion. Plain, wholesome food, and well cooked, is

the wise idea in regard to diet. Always demand that bread be baked until done through. Baked until the yeast is all killed. It is common to find bread on tables furnished otherwise with good food, which is not well baked. Such bread causes sour stomach, disturbs digestion, and in that way lowers resistance. When one's stomach is sour, the mucous linings are inflamed and the trouble extends to the bowels. This furnishes opportunity for entrance to the system of germs of tuberculosis, which might be in the milk you drink, or germs of typhoid fever and dysentery, which might be in the water you drink. Therefore don't eat sour or insufficiently baked bread. It is a foolish and unnecessary act. If it is not thoroughly baked, send it back to be toasted. Thousands of cases of dyspepsia have been started by eating bread in which the yeast has not been killed by thorough baking. Drink sparingly of water while eating. Chew your food until it is well masticated, be deliberate in eating, never hurry. Always stop before your appetite is completely satisfied, and remember you are a fool to gorge yourself. Only hints in regard to food and eating can be given here. You should study the subject in books and by observation.

Intemperance often leads to consumption. Indeed, alcohol is known to be one of the most potent factors in inducing consumption. Whiskey always strikes at the most vulnerable point, the nervous system. This is true even when its use seems to feed the body rather than to waste it. Whatever makes for lowered vitality makes for consumption. Working all day and frolicing half the night is dissipation, and makes for consumption. All stimulants injure the nervous system, as they spur on to further abuse when the nervous system complains. To sum up, the part food and drink play in keeping one in good health, in keeping up resistance against disease, we will say: *Eat plain food, well cooked food, eat slowly, eat temperately, never gorge, use liquids sparingly during eating, drink freely of pure soft water between meals, not less than one-half gallon daily, drink very weak coffee and tea, or better none at all, drink sparingly of alcoholic beverages, or better none at all.* The watchwords in eating and drinking are: Plainness, Temperance, Moderation.

The dwelling, clothing, bathing, calmness of mind, are all to be considered in keeping well. Even an abundance of pure air, a proper amount of plain, well-cooked food and temperance can not

insure good health and high resistance if one's dwelling is damp and infected, if one's clothing is insufficient or unsuitable, if one's mind is continually worried. We cannot, however, enter into all of this in this pamphlet, but we urge all readers to buy a good book on hygiene and study it.

SYMPTOMS OF CONSUMPTION.

Consumption is frequently a long time developing. The germs may have been implanted ten years, before the symptoms which mark consumption, appear sufficiently pronounced to enable us to unquestionably recognize the disease. The onsets of all cases are not the same. But, loss of appetite, loss of weight, fatigue on slight exertion, rapid pulse, fever in the afternoon and evening, and a cough most noticeable in the morning, are symptoms which are very suspicious. It is possible for a consumptive cough to exist for months with practically no impairment of the general health, or it may have been so insignificant, or may have occasioned so little trouble that the patient will deny having a cough, or will remember it only after careful questioning. Gradual loss of weight with languor and loss of appetite, increased heart action, afternoon and evening fever, are symptoms which almost always mean consumption and which are generally diagnosed as *malaria*. If these symptoms appear in you, don't buy patent medicines and ruin your stomach with them. Don't get the druggist to make up a cough syrup and have that hurt your stomach, and also don't take quinine and liver medicine. All of these are pretty certain to do you harm, unless directed by a competent physician. Remember, "he who has himself as a physician has a fool for a patient." When, therefore, you find you are *running down*, don't lose any time, but search out a specialist in diseases of the air passage and follow his advice, and remember—*if taken in time consumption is one of the most curable diseases.*

HOW TO CURE CONSUMPTION.

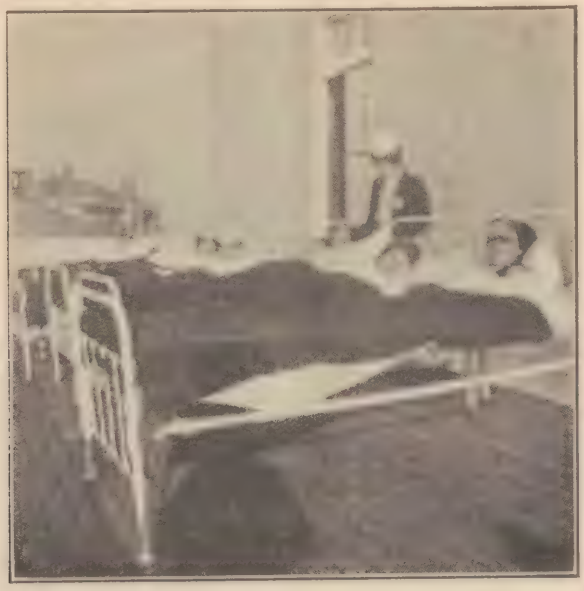
Only incipient or beginning cases can be cured. If the disease is advanced cure is not possible.

The best way to make you acquainted with the methods for curing incipient consumption is to tell the story of the Massachusetts State Sanatorium. This institution was opened in 1896

and was then called "The Massachusetts Hospital for Consumptive and Tubercular Patients." The name was changed because it was too long and because consumptives objected. This hospital is at Rutland, Massachusetts, and can accommodate 300 patients. A picture of this hospital is in the front of this pamphlet. It is out in the country, situated on the south side of a hill, and built so that sunshine and air freely enter every apartment. Only residents of Massachusetts are admitted. Upon arrival the patient is carefully examined by the physicians, and, if judged to be curable is admitted; and now begins the tug of war against the disease. It is a hard fight, indeed, and there must be no cessation. The printed rules of the institution are handed to the patient to read and when he is acquainted with them he is asked to sign them if entirely willing. The rules are very strict, and, if signed, the act amounts almost to enlistment in the army. The doctors are the officers, they must be obeyed absolutely, the responsibility is upon them. They have the knowledge of how cure is to be gained. The patients do not know, and being sick are sure to have all kinds of crochets and notions, and they must be controlled by others. After signing the rules, the treatment commences. Medicines are not given directly for the disease. They are always sparingly given and solely to relieve such symptoms as constipation and other complications. The patient takes a bath the first thing and is rubbed down with rough towels. This is done every day and is for the purpose of securing healthy skin action. If the skin does not perform its functions, cure is not possible. A private patient of the writer was told by another doctor not to bathe every day, for it would certainly do her harm. She liked the advice as she was not a willing bather, and, of course, no progress was made against the disease. She died. Very likely the physician was not much of a bather. The patient finds his room—at the sanatorium—large, with high ceiling, airy, and the sun streaming in, when it shines, at least one-half the day. Air and sunshine are enemies of consumption. The rooms contain a single enamelled iron bedstead, a table, a bureau or dresser, and two chairs. The walls are painted with hard, glossy, and tinted paint. There is no wardrobe or closet, the clothes being hung on hooks against the wall and covered with a curtain of washable stuff. This permits the air to circulate around them. Lavatories are plenty and handy, and hence there are no wash-stands in the rooms. The hard, polished

wood floor has a single rug upon it, lying by the side of the bed. Cleanliness, airiness, brightness, and order prevail.

Regular, orderly life is the rule. The patient must be in bed at 9 o'clock, at the latest, and may retire earlier if he wants to. When in bed he is rolled out onto the terrace, with only the sky



Massachusetts State Hospital for Consumptives. Early Morning, After Sleeping Out on the Terrace All Night.

for a roof, unless it is raining, snowing or storming. Then, of course, he remains indoors, but the windows and doors are kept open, and the air freely circulates through every room and hall. Patients are forbidden to close windows and doors, only the nurses may do that. At some sanatoriums the patients sleep in shacks or tents, never in the house.

DAILY OUTDOOR LIFE.

The patient is out of doors all night, weather permitting, and must be out of doors all day. Indeed, the house is simply a refuge to occupy for bathing, dressing, dining, protection from storm, and like purposes. The patient must be outside all he possibly can. We should always consider our houses as places to enter for performing private necessities, and not for constant indwelling. In

so far as houses further disease they are a nuisance, and this nuisance exists to the degree we make it.

Wholesome entertainment and the cultivation of cheerfulness and helpfulness are necessary accompaniments of the outdoor life. Light labor is the best entertainment, but if any physical exertion causes the temperature of the body to rise, then quiet and rest are indicated. In health, the perspiring laborer swinging a heavy

Massachusetts Sanatorium. Afternoon Nap Out of Doors in Winter.

hammer has the same body temperature as when he quietly rests in the shade. For pleasant outdoor entertainment many patients study botany. They gather flowers, weeds, grasses, and all kinds of plants, and study and analyze them. This brings knowledge that is valuable and cultivation of mind. Some study insects and birds. A great deal that is interesting and entertaining may be learned about birds and insects while quietly resting. The shoveling of snow or working in the garden, except in occasional instances, is labor too severe for the convalescent consumptive. As a rule exertion must cease and be followed by rest if temperature increases.

Many camps or shelter shacks are found on the farm surrounding the Massachusetts Sanatorium.

These are simply sheds with floors and roofs, and enclosed on three sides, with windows in each side. The side to the south is entirely open. Some of these shacks have fireplaces and some stoves, which give cheerfulness and warmth in bad weather.

DIET.

The diet at the sanatorium is plain and well cooked. Salads, pickles and all stimulants to create artificial appetite are sparingly used. The appetite must be natural, the result of outdoor life. The pure blood made by breathing freely of pure air, makes good appetites and also insures good digestion and assimilation. There are three regular meals each day and three luncheons. The meals are never hearty, but always sufficient. Hearty meals, gorging, are sure to cause indigestion and mal-nutrition. As high nutrition is necessary to restore and exceed the waste caused by consumption, every care must be taken to keep nutrition at the top notch. It is well.

Massachusetts Sanatorium. A Camp in Winter.

therefore, where appetite exists, not to indulge to complete satiety, but to leave a margin for thorough and vigorous digestion. If there is no appetite, and patients rebel against taking food, they are urged nevertheless to take it in the form of good rich milk and fresh eggs. Nutrition, they must have, naturally and under the best conditions if possible, otherwise it must be forced. The terrible waste caused by the disease must be replaced or there is no cure. The regular meals consist of any good, plain foods, well cooked. Well made and well baked bread is very necessary. Poorly baked bread contains live yeast cells, and these cells cause indigestion. The raw flour in poorly baked bread is another cause of indigestion. The writer has many times had bread offered him at small hotels

and farmhouses, which was unfit to eat because it was not cooked through. Doubtless, cases of indigestion without number have been induced by the continuous eating of partially raw bread. Much of the bakers' bread sold in grocery stores in cities should be condemned and carried to the dump because of the harm it does to the health of those who eat it. The people generally do not know this fact and do not understand about it, and the health department would not only be ridiculed, but would be strongly opposed, if partially raw bread was condemned.

The luncheons at the sanatorium, which are taken about midway between meals and just before going to bed, are principally raw eggs and fresh milk. The patients may not like this food, but they are urged to take it, for, as said, the body must be built up. At times a thin bread and butter meat sandwich is given with the milk. But milk is always the leading article of the luncheon. It is best to drink milk slowly. Take a small portion, hold a moment in the mouth and then swallow it. Don't hurry, take not less than one-fourth minute to each swallow. Milk taken in this way is prevented from forming a clot in the stomach. A lump of milk is slow and hard of digestion. Those who claim that milk hurts them, will find it does so because it is drank too rapidly. In forcing feeding, patients sometimes take in one day two or three quarts of milk and six to twelve raw eggs. Those who can do this make rapid headway against the disease. Fruits are, of course, used freely, especially stewed fruit, but rich desserts and pastry are carefully avoided. Butter and sugar sauce on plain boiled rice makes a fine nutritious, but not too rich, dessert. The much abused prune, when of good quality, thoroughly stewed and eaten with cream is a capital dessert. It really takes only mediocre ability to supply a menu of appetizing, plain, well-cooked food. It is perhaps needless to say that, if any article of diet seems to hurt or be harmful to the digestion of any person, it should be dropped.

CLIMATE.

Climate has very little to do with the cure of consumption. It is air and sunshine the patient needs, and both of these are obtainable in Indiana. It is usually a mistake for people, especially poor people, to go away from home to another climate for the cure of consumption. If the person is rich, let him go if he wants to.

He has money and can buy attention and all comforts wherever he is. It is very different with the poor person. He lands sick and tired in a new land. His money is soon gone and he cannot work, and if he could, he will find scores of other unfortunates ahead of him. Presently—discouraged, worn out, with not enough to eat, he is overtaken with homesickness and now his rapid decline begins. Homesickness alone is hard to bear, and when coupled with consumption the two almost always kill. Even if a consumptive is cured in Colorado or some foreign climate, he must remain where he is cured, for if he returns home he must again go through the acclimating process and this generally starts up the old consumption again. Doctors usually make a great mistake to recommend their consumptive patients to go to another climate. Doctors out west say: "Don't send your poor consumptive patients out here; they all go back in the baggage car."

HOME CURE OF CONSUMPTION.

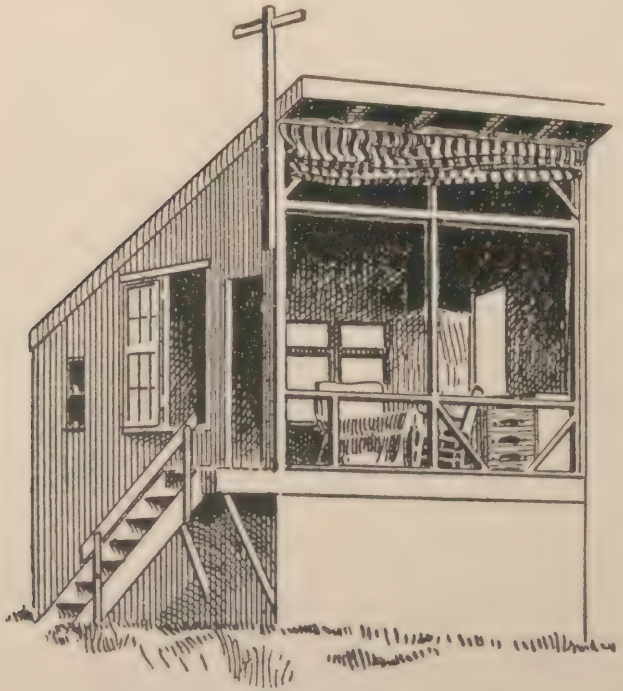
The cure of incipient consumption, always a long, hard fight, may be accomplished at home in almost any climate. The great trouble at the sanatorium, and which is still greater at the home, is to make the patient follow out, without variation, the strict regimen. Failure to obey some seemingly unimportant rule may result in a backset, undoing the gain made in two or three weeks.

The patient is sick, does not want to believe, probably will not and probably does not believe he has consumption. His relatives and friends, too, are frequently of the same mind. This condition has led to thousands of deaths. The first step in the cure is to recognize that the disease exists and make no effort to dodge the fact. It must be squarely met. This being done, and the reserved idea that the illness is "only a deep-seated cold" or "simply a bad case of stomach trouble," utterly put away, then the first step toward cure is taken. Remember, too, that almost all cases of beginning consumption are diagnosed as malaria, dyspepsia, marasmus, etc. Better, by all odds to take the view that the attacking disease is tuberculosis and find out afterward if it is malaria or something else.

SLEEPING OUTDOORS.

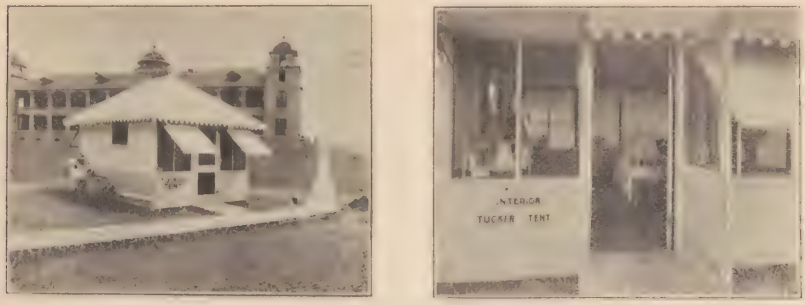
The second step is to provide a place for sleeping out of doors. One good way is to build a sleeping shack such as is pictured above. At the Millet Sanatorium at Bridgewater, Mass., numbers of these

shacks have been built. The shack should face the south, and as for the rest the picture tells the story. A convenient tent for sleeping outdoors is illustrated below. The construction of the tent is shown by the picture. It should have a board floor and wooden frame to support the canvas. The sides may be tongue-and-groove stuff to a height of three or four feet. Such tents are in use at "The Health Farm" near Denver, where consumptives are treated by the open air method. Frequently it is possible to build a porch, either to a lower or upper story of the house, and there, with a roof and side curtains of canvas to keep out the storm, the patient may sleep in private and in comfort, enjoying ventilation which can never be secured in a room. In one instance the writer knows of, the house faced the south, having a veranda in front and it was simply made two story. The upper floor was surrounded with lattice-work with good-sized lattice windows which could be opened to admit sunshine. The front window of the front upstairs bedroom was cut down to the floor and closed with a double glass door. This gave easy communication from inside of the house to

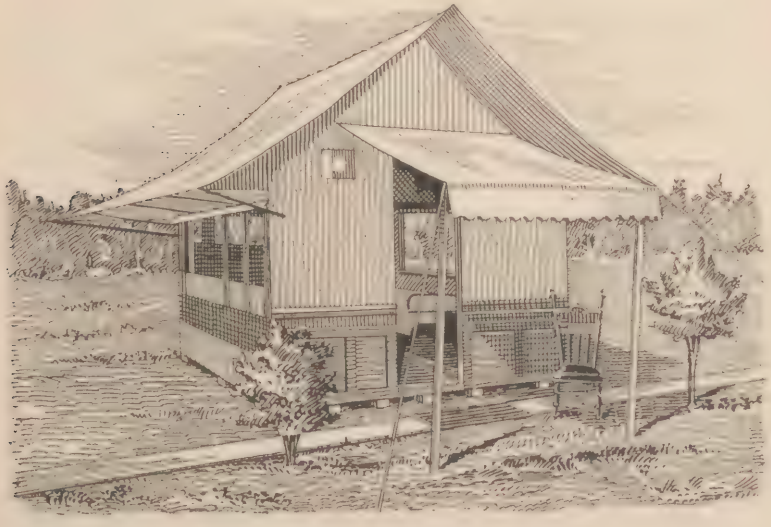


Sleeping Shack. May Be Built in the Yard.

the latticed room. Upon retiring it was an easy matter to enter the lattice and get into bed, or, the patient being in bed, for a nurse to roll it out. If there is difficulty in keeping warm, although an abundance of blankets are used, the trouble is overcome by using hot water bottles. With heavy woolen nightrobes, heavy woolen



Tucker Tent for Living Out of Doors.



Tent for Open Air Cure of Consumption.

blankets and hot water bottles, the coldest nights known may be passed out of doors in comfort. The arctic explorers sleep out of doors when the mercury is frozen in the thermometer, and without hot water bottles. Indians, hunters, and also trappers, sleep out of doors during the coldest nights. All arctic explorers report, that although the men get wet and sometimes have parts frozen, yet

such a thing as a cough or cold is never known. When, however, they return home and again begin indoor life, then they have coughs, colds, grippe and pneumonia, and following these, consumption. The opportunity for sleeping out of doors is merely a matter of arrangement at any home, except a city flat.

DIET.

Food, plain, well cooked and nutritious, must be taken at least six times a day. Follow the plan of the Massachusetts Sanatorium as given elsewhere. If the appetite is good never eat to fullness. This is to keep digestion and assimilation in good condition. Be very deliberate in eating. Chew all food until thoroughly masticated. Take a glassful of water ten minutes before eating, but don't drink while eating. Especially don't wash food down into the stomach by drinking water, for this dilutes the gastric juice and interferes with digestion. The drinking of pure water between meals is most healthful. Well people should drink at least two quarts per day, and consumptives should not think of missing one day without drinking the same amount.

Three-fourths of the weight of the human body is water, and the free drinking of water helps to cure disease and increase weight. It is best to drink water hot if the stomach is heavy, or the digested food seems not to move out promptly. Under such conditions the hot water dissolves and dilutes the stomach's contents and helps its absorption. Nothing equals milk and raw eggs for promoting nutrition. The patient must learn to take raw eggs. Some will find it difficult at first to swallow them raw, but persistence in trying will bring success. Raw eggs, like bread and butter menu, clog the appetite. For a change, the eggs may be beaten with the milk and a small amount of whiskey or brandy added. Stimulants must not usually be taken without directions from the doctor. Tea and coffee may be drank, but must be weak. Strong coffee and strong tea injure the nervous forces, and a consumptive can not afford to trifle in that direction.

Take no medicines unless by the doctor's directions. Remember that medicines are hardly used at all at the sanatoriums. Codliver oil is useful principally as a food, eggs and fresh milk being far superior. Medicines are apt to injure the stomach, and hence taking them is almost always attended with more harm than good.

CARE OF SPUTUM.

The infection of tuberculosis is in the sputum. Millions of seeds are thrown off every time a consumptive coughs and spits. It is as dangerous for a consumptive to spit anywhere and everywhere as it would be to sprinkle small amounts of arsenic about. It is possible, too, for a consumptive to reinfect himself from his own dried sputum. He may also induce tuberculosis of the intestines by swallowing his sputum. The affected person is as much interested in destroying his sputum as others, for by taking in again his own poison he may die, when otherwise he would get well. Consumptives should be supplied with paper napkins or sheets of tissue paper to use as handkerchiefs, and they should be used once only. After using they may be placed in a paper bag, and bag and papers, burned when convenient. Elsewhere we have told about this and also told how important it is that when coughing a paper napkin should be held in front of the face to catch the spray which contains millions of germs. Paper spit cups and pocket spit flasks can be purchased at drug stores. They are cheap and convenient. An ordinary stone-china tea cup with handle makes a good spit cup for a bed confined consumptive. The cup may contain carbolic acid or other germicide, and when emptied the contents should be buried, or better burned, and the cup scalded several times to cleanse it. The dishes used by consumptives should be kept separate from other dishes and be thoroughly boiled in water each time after using. Some will say that these precautions will offend the poor sick one and add to the burden of his life. This is likely true, but it is no reason for making other consumptives, and surely no reasonable and considerate person stricken with consumption would be content to do otherwise than to take every precaution against communicating his disease to others. Not only should consumptive sputum be cared for in a sanitary manner but spit should always be destroyed. Spit is oral (mouth) excrement, and it is dried spit or spit sprayed into the air by coughing and sneezing, and dried discharged matter from the nose, which convey the germs of grippe, coughs, colds, catarrh, diphtheria, scarlet fever, measles, and all diseases of the air passages. All persons, sick or well, all of the time under all circumstances, should destroy the discharges from mouth and nose. Until this is done we must suffer and die from diseases of the air passages.

Sharon Sanatorium, Massachusetts. Resting Out of Doors in Winter.

This institution at Sharon, Mass., has capacity for 21 young women.

It is impossible, despite every care, to keep from infecting bed clothes, carpets, draperies and walls of a room that is occupied by a consumptive in the last stages of the disease. If, therefore, the

Administration Building and Tents at the Ottawa Tent Colony, Ottawa, Ill.

room is not disinfected those who occupy it later are constantly taking in the germs and will almost certainly have the disease.

DISINFECTION.

Infection is a general term applied to germs or any matter which causes disease. A person who has grippe, blows his nose into his handkerchief and immediately it is infected with grippe germs. So long as the matter is wet there is no danger of transmission of the disease, but if the handkerchief becomes dry and is shaken, then millions of germs are thrown into the air. Now if you are near, and if you are a little under tone (resistance lowered), and if you breathe the dried germs, then you will have grippe. This serves as an illustration to teach us that the disease germs of human beings are most frequently the source of human diseases. It teaches also that spit and nose discharges are very dangerous. Of

course, many will laugh at this and ridicule, but they will not do so if they will seriously study the matter and learn the truth.

But to return to what disinfection means. It is to destroy infection. Cleanliness, air and sunshine are fine disinfectants. Apply these to a consumptive's sickroom, and it will be kept pretty free from infection, and this would, of course, apply to all sickrooms. Scalding hot steam and boiling water are excellent germ killers (germicides). To kill the germs which might be in blankets, towels, sheets, pillow-cases, handkerchiefs and other washable articles, simply boil them in water for at least twenty minutes. If boiling did not kill disease germs, the public laundries would be awful agents for distributing diseases.

DIRECTIONS FOR THE MANAGEMENT OF THE SICK ROOM.

1. Remove all carpets, drapery, clothing and furniture not needed.

2. Ventilate well. Keep windows up all the time. If you don't ventilate the sick room thoroughly, recovery is greatly delayed, for bad air of itself makes well persons sick.

3. The room, nurse and patient should be kept perfectly clean. Cleanliness greatly aids recovery.

4. Admit no visitors without permission of the physician.

5. Keep out flies, mosquitoes and other insects by screens and all practicable methods. Insects worry sick people, thus preventing recovery, and they also very frequently carry disease in their bite.

6. Never allow a bad smell to exist. If free ventilation, sunshine and cleanliness do not keep out bad smells, then sprinkle dilute fromaldehyde (1 part formaldehyde to 50 of water) onto the carpet, or spray it into the air with an atomizer.

7. All body or bed clothing, towels, napkins, cloths, bandages, sponges, and also all dishes which have been in the sick room must be disinfected before being taken from the room, as per direction on next page.

8. Discharges from the sick, whether from the mouth, bowels or bladder, must always be received in a vessel containing a disinfectant, and allowed to remain in contact with the disinfectant at least one-half hour before they are buried.

9. Consider that everything that has been brought into the sick-room has become infected and carefully disinfect it before carrying out. Also, never leave a sick-room or eat without first washing hands with carbolic or other antiseptic soap.

DISINFECTION.

Whenever a room has been occupied by a person sick with consumption, diphtheria, scarlet fever, typhoid fever, smallpox, measles or whooping cough, it should be carefully disinfected and all clothing and articles which have been in contact with the patient should also be disinfected. Burn old mattresses, old carpets and like articles. If this were always done there would be much less sickness, and then the seeds of the disease would be killed and so prevented from causing more sickness. Don't neglect to disinfect after sickness; it will pay well. It would pay to disinfect at intervals even if no sickness had existed.

HOW TO DISINFECT.

Washable Articles: Into a tub or other receptacle of appropriate size, put enough water to cover the handkerchiefs, towels, napkins, sheets, blankets or other washable articles, and to each gallon of water used, add one fluid ounce (two tablespoonfuls), of 40 per cent. formaldehyde solution. Stir the water and formaldehyde together and then put in the articles. Let soak for not less than one-half hour, then laundry as usual.

Unwashable Articles: Quilts, comforts, pillows, mattresses, carpets, rugs, clothing, etc., may be disinfected by placing them in a tight room or in a room that is itself to be disinfected, and then burning sulphur therein or filling the room with formaldehyde gas.

HOW TO DISINFECT A ROOM.

Preparation of Room: I. Carefully close all windows and doors, except one door for exit. Paste paper over stovepipe holes, and put wetted, or better, paste paper strips over all windows, transom or door cracks. In a word, seal the room tightly from the inside.

II. Open closet doors, drawers, trunks, boxes, etc. Suspend clothing and bed clothes upon lines stretched across the room, or spread out on a chair or clotheshorse. Books must be opened and

the leaves spread; in short, the room and its contents must be so disposed as to secure free access of gas to all parts and all objects.

III. The next point is to make the air in the room damp; this is absolutely necessary for disinfection, either by sulphur or by formaldehyde. Dampness may be produced (a) by boiling water on a gas or gasoline stove; (b) by pouring boiling hot water from a tea kettle into a tub; (c) by pouring hot water onto hot bricks or stone, or by dropping hot bricks or stones into vessels containing water. Under no circumstances is efficient disinfection possible without in some way making the air of the room quite damp.

IV. Measure the room and multiply the length, breadth and height together. This will give the contents in cubic feet. Divide by 1,000, and this gives the number of thousand cubic feet in the room. This is called the unit space.

Disinfection by Sulphur: Place a tub containing about two inches of water in the room. Put two bricks in the tub and on them place an iron or tin pan or a stone crock, and in the pan or crock place three pounds of sulphur for every 1,000 cubic feet. Now fill the room with steam. When the room is full of steam, pour a spoonful of alcohol or coal oil onto the sulphur and set on fire. Immediately leave the room and close the door. The sulphur is burned to a gas and this gas, in the presence of the steam, kills all infection. Sulphur gas without steam is worthless. Do not, on any account, leave out the steam. "Sulphur candles," purchasable at drug stores, are all right, if enough are used, but they are more expensive than ordinary sulphur, and of course must have steam as ordinary sulphur.

Disinfection by Formaldehyde: Measure the room, and for each 1,000 cubic feet use two pints of formaldehyde and thirteen ounces of commercial permanganate of potassium. Procedure.—Place a large washbowl, crock, tin dishpan or galvanized iron pan or tub in the center of the room. Put in the required amount of permanganate of potassium and lastly pour in the required amount of formaldehyde. *Permanganate must go in first.* Retire immediately after pouring on the formaldehyde, for the formaldehyde gas is promptly released and is injurious if breathed in any quantity. Keep the room closed for at least three hours, then open, air thoroughly, and clean in the usual way.

Disinfection of Clothing or a Few Articles: Take an empty trunk, wooden box or wash boiler. On the bottom lay any

article, say a coat, cover with an old towel or a piece of wash goods, and sprinkle thereon two tablespoonfuls of 40 per cent. formaldehyde solution. Then put in another article, say a pair of trousers or a dress skirt, cover as before, and again sprinkle two tablespoonfuls of formaldehyde. If there are enough articles the boiler or trunk may be filled in this way. Finally put on the cover to the boiler or close the trunk, and in ten hours open and hang out in the air and sunshine. If the smell of formaldehyde persists, a little aqua ammonia sprinkled on the clothes will remove it.

A Standard Disinfectant: Dissolve chloride of lime of the best quality in pure water in the proportion of six ounces to the gallon. Keep in a stone jar or jug. Use one quart of this solution for each discharge from a patient suffering with any contagious or infectious disease. Mix well and leave the vessel for an hour or more before throwing in privy vault or water closet. The same for vomited matter. For a very copious discharge, especially in typhoid fever, use a larger quantity; and for solid or semi-solid matter, use the solution in double strength. Discharge from the mouth and throat should be received into a cup half full of the solution, and those from the nostrils upon soft cotton or linen rags which should be immediately burned.

HAVOC WROUGHT BY CONSUMPTION IN INDIANA IN 1905.

Total consumption deaths	4,492
Males	1,913
Females	2,579
Mothers 18 to 40, prime of life	935
Fathers 18 to 40, prime of life	321
Orphans made under 12 years of age	2,590
Homes invaded by the plague of consumption	3,186
Cost to the people not less than	$10,000,000